Parisharam (2024)

Relations and Functions

DPP-02

1. Let $A = \{4, 5, 7\}$ and $B = \{2, 4, 6\}$ be two sets and let a relation R be a relation from A to B is defined by R: $\{(x, y) : x < y, x \in A, y \in B\}$ then the difference between the sum of elements of domain and range of R is:

(1) 2 (2) 3
(3) 4 (4) 5

2. R is a relation from {11, 12, 13} to {8, 10, 12} defined by $y = x-3$. The relation R^{-1} is:

(1) {(11, 8), (13, 10)}
(2) {(8, 11), (10, 13)}
(3) {(8, 11), (9, 12), (10, 13)}
(4) None of these

3. Which one of the following relations on the set of real numbers R is an equivalence relation?

(1) $aR_1b \Leftrightarrow |a| = |b|$
(2) $aR_2b \Leftrightarrow a \geq b$
(3) $aR_3b \Leftrightarrow a\, divides\, b$
(4) $aR_4b \Leftrightarrow a < b$

4. For real number x and y, we write $xRy \Leftrightarrow x - y + \sqrt{2}$ is an irrational number. Then the relation R is.

(1) Reflexive (2) Symmetric
(3) transitive (4) None of these

5. Let S be the set of all real numbers. Then the relation

R = $\{(a,b) : 1 + ab > 0\}$ on S is:

(1) Reflexive and symmetric but not transitive
(2) Reflexive, transitive and symmetric
(3) Reflexive and transitive but not symmetric.
(4) None of these.

6. Let N denotes the set of all natural numbers and R be the relation on $N \times N$ defined by (a, b) R (c, d) if $ad(b + c) = bc(a + d)$, then R is:

(1) Symmetric only
(2) Reflexive only
(3) Transitive only
(4) An equivalence relation

7. Let R be a relation defined on Q as follows:

$a, b \in$ Q, a R b if and only if $|a - b| \leq 1$.

Then which of the following is true?

(1) R is reflexive and symmetric
(2) R is reflexive and transitive
(3) R is symmetric only
(4) R is anti-symmetric only

8. Let L be the set of all straight lines in a plane. l_1 and l_2 are two lines in the set. R_1, R_2 and R_3 are defined relations

(i) $l_1R_1l_2 : l_1$ is parallel to l_2
(ii) $l_1R_2l_2 : l_1$ is perpendicular to l_2
(iii) $l_1R_3l_2 : l_1$ intersects l_2

Then which of the following is true?

(1) R_1, R_2 and R_3 are equivalence
(2) R_1 is equivalence
(3) R_2 and R_3 are reflexive
(4) R_1, R_2 and R_3 are not symmetric.

Note: Kindly find the Video Solution of DPPs Questions in the DPPs Section.

Answer Key

1.	**(2)**	**5.**	**(1)**
2.	**(2)**	**6.**	**(4)**
3.	**(1)**	**7.**	**(1)**
4.	**(1)**	**8.**	**(2)**

PW Web/App - https://smart.link/7wwosivoicgd4

Library- https://smart.link/sdfez8ejd80if